

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A device for the thermal decomposition of volatile compounds, and deposition of particles which are then formed, comprising ~~which includes at least the following characteristic features~~

[[-]] a pressure vessel (1),

[[-]] at least one reaction tube (2), the open end (2c) of which extends into the pressure vessel and the other end of which is located outside the pressure vessel and is provided with a gas feed (3), wherein the longitudinal axis of the reaction tube is oriented in the direction of gravity and parallel to the longitudinal axis of the pressure vessel (1d), and the reaction tube can be heated (2a) on the gas inlet side and cooled (2b) on the gas outlet side,

[[-]] wherein the pressure vessel (1), in its lower part, ~~has~~ comprises a collection cone (1a), wherein the open end of the at least one reaction tube ~~tube(s)~~ (2c) extends ~~extending~~ into the gas space of the collection cone (1b),

[[-]] wherein the collection cone (1a) is connected to an outlet lock (6) for particles (P), and

[[-]] a gas outlet unit (7), which ~~is equipped with~~ comprises a gas guide (7a), wherein the gas inlet region (7b) ~~of which~~ is in communication with the gas space (1b) of the collection cone (1a), a filter system (8) and a gas outlet (9), which is located outside the pressure vessel.

Claim 2 (Original): The device as claimed in claim 1, wherein the outer walls of the pressure vessel (1) are coolable (1c).

Claim 3 (Currently Amended): The device as claimed in claim 1 ~~or 2~~, wherein ~~[[a]]~~
the at least one reaction tube (2) has a length of from 60 to 700 cm.

Claim 4 (Currently Amended): The device as claimed in claim 1 ~~any of claims 1 to 3~~,
wherein ~~[[a]]~~ the at least one reaction tube (2) has a diameter of from 30 to 400 mm.

Claim 5 (Currently Amended): The device as claimed in claim 1 ~~any of claims 1 to 4~~,
wherein ~~[[a]]~~ the at least one reaction tube (2) ~~consists of~~ comprises a material selected from
the group consisting of metal, silicon nitride, silicon carbide, Si-infiltrated silicon carbide, ~~or~~
and quartz glass.

Claim 6 (Currently Amended): The device as claimed claim 1 ~~in any of claims 1 to 5~~,
wherein ~~[[a]]~~ the at least one reaction tube (2) is sheathed by an electrical resistance heating
means (4) on the gas inlet side.

Claim 7 (Currently Amended): The device as claimed in claim 1 ~~any of claims 1 to 6~~,
wherein ~~[[a]]~~ the at least one reaction tube (2) is surrounded (2b) by a cooling unit (5) toward
its open side (2c).

Claim 8 (Currently Amended): The device as claimed in claim 1 ~~any of claims 1 to 7~~,
wherein ~~[[a]]~~ the at least one reaction tube (2) can be heated over 30 to 70% of its length.

Claim 9 (Currently Amended): The device as claimed in claim 1 ~~any of claims 1 to 8~~,
which ~~includes~~ comprises from 2 to 36 reaction tubes (2).

Claim 10 (Currently Amended): The device as claimed in claim 1 ~~any of claims 1 to 9, which includes an~~ wherein the outlet lock (6) ~~with~~ comprises a double-flap system (6a, 6b).

Claim 11 (Currently Amended): The device as claimed in claim 1 ~~any of claims 1 to 10, which includes a~~ wherein the filter system (8) ~~having~~ comprises one or more filter candles.

Claim 12 (Currently Amended): The device as claimed in claim 11, wherein the one or more filter candles comprise a material selected from the group consisting of which ~~includes filter candles made from~~ sintered metal, ceramic, fibers ~~[[or]]~~ and plastic.

Claim 13 (Currently Amended): The device as claimed in claim 1 ~~one of claims 1 to 12, wherein the~~ at least one reaction tubes tube (2) and the gas outlet unit (7) are connected to the pressure vessel (1) by ~~means of~~ water-cooled steel flanges.

Claim 14 (Currently Amended): A process for the thermal decomposition of at least one volatile, thermally decomposable compound and deposition of particles which are then formed, using the device as claimed in ~~any of claims 1 to 13~~ claim 1, ~~in which~~ comprising

~~[[-]]~~ heating the at least one reaction tube (2), on the inlet side (2a), to a temperature greater than or equal to the decomposition temperature of the volatile, thermally decomposable compound,
cooling the lower region (2b) of the at least one reaction tube (2), the
~~corresponding reaction tubes (2) are heated on the inlet side (2a) to the~~
~~decomposition temperature of the volatile compound, and the lower region (2b) of~~

~~the reaction tubes is cooled,~~

~~[[(-)] optionally, diluting the volatile, thermally decomposable compound with a gas or gas mixture,~~

~~feeding the volatile, thermally decomposable compound into the at least one reaction tube (2), via the corresponding gas feed (3),~~

~~decomposing the volatile, thermally decomposable compound to form the particles (P) and at least one gas (G), the volatile, thermally decomposable compound is if appropriate diluted with a substantially inert gas and this gas or gas mixture (G) is fed to the reaction tubes (2) via the corresponding gas feed (3),~~

~~[[(-)] gathering the particles (P) which are formed during the decomposition and have gathered in the collection cone (1a) , and discharging the gathered particles (P) via the are discharged via the lock unit (6), and~~

~~[[(-)] wherein the at least one gas (G) the gas or gas mixture (G') which is formed during the decomposition reaction is discharged via the gas outlet (9), with the pressure in the pressure vessel (1) being kept substantially constant.~~

Claim 15 (Currently Amended): The process as claimed in claim 14, wherein the ~~inlet side part of the reaction tubes~~ the inlet side (2a) of the at least one reactor (2) is heated to a temperature which is above the decomposition temperature of the substrate, ~~in the case of SiH₄ from 800 to 1100°C.~~

Claim 16 (Currently Amended): The process as claimed in claim 14 ~~or 15~~, wherein the lower ~~part~~ region (2b) of the at least one reaction tube (2) ~~reaction tubes (2b, 2e)~~ is cooled to a temperature of $\leq 100^{\circ}\text{C}$.

Claim 17 (Currently Amended): The process as claimed in claim 14 ~~any of claims 14 to 16~~, wherein monosilane, undiluted, ~~(G) or diluted with hydrogen (G)~~, is fed to the ~~pyrolysis reactor~~ at least one reaction tube (2).

Claim 18 (Currently Amended): The process as claimed in claim 17, wherein the particles (P) are a high-purity silicon powder (P), ~~is obtained, with the product and wherein the particles (P) being are~~ discharged from the collection cone (5) in batches via ~~a double-flap system (6a, 6b) of the outlet lock (6)~~.

Claim 19 (New): The process of claim 15, wherein the volatile thermally decomposable compound is SiH_4 , and wherein the temperature is from 800 to 1100°C.

Claim 20 (New): The process of claim 14, comprising diluting the volatile, thermally decomposable compound with a gas or gas mixture, wherein the gas or gas mixture comprises hydrogen.